

CO₂ in the Sea

On SCOPE's Climate Adaptations episode, Julia used bottles of soft drink to discover the effects of climate change in our oceans. Here's how you can do it at home:



Our oceans absorb and store carbon dioxide gas from the atmosphere. Soft drink also stores lots of carbon dioxide gas – that is what makes it fizzy. So, in this experiment soft drink is representing our oceans.

*** This experiment can get messy, so make sure you're outside and that you wear old clothes.*

What you need:

- 2 bottles of soft drink
- Fridge
- Black marker

What to do:

1. Label one bottle of soft drink 'cool ocean.'
2. Label the other bottle of soft drink 'warm ocean.'
3. Place the 'cool ocean' bottle of soft drink in the fridge, and the other in the sun to warm up.
4. After a few hours, take both bottles to a clear spot in your garden.
5. Shake each bottle a few times.
6. Take the cap off each bottle and see what happens!
You will find that more soft drink sprays out of the 'warm ocean' bottle of soft drink, than the 'cool ocean' bottle of soft drink.

What's happening?

Our atmosphere naturally retains gases like carbon dioxide, methane, and ozone. It's known as the greenhouse effect and it keeps the earth's surface warm enough for us to live on. However human activities, like burning fossil fuels, are releasing extra greenhouse gases into the atmosphere, which are upsetting the natural balance and causing temperatures to slightly increase.

Our oceans are known as carbon sinks because they are able to absorb and store carbon dioxide gas from the atmosphere. It has been found that around 50% of all man-made carbon dioxide has been absorbed by our oceans. How is this going to change with an increase in temperature?

In this experiment, soft drink exploded out the top of the warm bottle but not the cold. Why? Well, whenever soft drink sprays out of a bottle it is because carbon dioxide is escaping, bringing soft drink along with it. So in this instance, because more carbon dioxide escaped from the warmer bottle than the colder bottle, this shows that as the oceans warm up, they can't hold as much carbon dioxide and it is released back into the atmosphere – which isn't good news for us!